

Amendment
U.S. Patent Application No. 09/761,561

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A microbicidal ~~composition~~ formulation comprising at least one disinfectant and a complex of the formula R-M, wherein R is at least one organic chelating moiety and M is at least one metal ion, and where R is present in an at least equimolar amount based on the amount of M, and M is microbicidal to at least one microorganism, wherein said at least one organic chelating moiety is an amino acid, wherein said amino acid includes a double bonded oxygen, wherein said double bonded oxygen of said amino acid is complexed to M at a pH of ~~about~~ 2 or less, and wherein said disinfectant and said complex are not the same, and wherein said complex is a solid in said formulation.

Claim 2 (currently amended): The microbicidal ~~composition~~ formulation of claim 1, further comprising an aqueous solution.

Claim 3 (currently amended): The microbicidal ~~composition~~ formulation of claim 1, wherein said at least one metal ion is a silver ion or colloidal silver or both.

Claim 4 (currently amended): The microbicidal ~~composition~~ formulation of claim 1, wherein said at least one metal ion of copper, zinc, mercury, chromium, manganese, nickel, cadmium, arsenic, cobalt, aluminum, lead, selenium, platinum, gold, titanium, tin, barium, vanadium, bismuth, iron, strontium, antimony, and the like, and combinations thereof.

Claims 5 and 6 (canceled)

Claim 7 (canceled): The microbicidal ~~composition~~ formulation of claim 1, wherein said at least one organic chelating moiety is formed from an alpha-amino acid.

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Claim 8 (currently amended): The ~~microbicidal composition~~ formulation of claim 1, wherein said at least one organic chelating moiety is isoleucine, phenylalanine, leucine, lysine, methionine, threonine, tryptophan, valine, alanine, glycine, arginine, histidine, or mixtures thereof.

Claim 9 (currently amended): A method to control the growth of microorganisms comprising contacting the microorganisms with a ~~microbicidal composition~~ formulation comprising a complex of the formula R-M, wherein R is at least one organic chelating moiety and M is at least one metal ion, and where R is present in an at least equimolar amount based on the amount of M, and M is microbicidal to at least one microorganism, wherein said at least one organic chelating moiety is an amino acid, wherein said amino acid includes a double bonded oxygen, wherein said double bonded oxygen of said amino acid is complexed to M at a pH of about 2 or less, and wherein said microbicidal composition kills said microorganisms intracellularly.

Claim 10 (currently amended): A method to control biofouling in a system, comprising introducing an effective amount of said ~~microbicidal composition~~ formulation of claim 1 to said system to control said biofouling.

Claim 11 (currently amended): The ~~microbicidal composition~~ formulation of claim 1, wherein the molar ratio of R to M is from about 1:1 to about 2:1.

Claim 12 (currently amended): The ~~microbicidal composition~~ formulation of claim 2, wherein said ~~microbicidal composition~~ formulation is present in said aqueous solution at a concentration of from about 0.001% to about 10% by total volume.

Claim 13 (currently amended): A method to prepare a ~~microbicidal composition~~ formulation comprising a complex of the formula R-M, wherein R is at least one organic

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chelating moiety and M is at least one metal ion, and where R is present in an at least equimolar amount based on the amount of M, and M is microbicidal to at least one microorganism, wherein said at least one organic chelating moiety is an amino acid, wherein said amino acid includes a double bonded oxygen, and wherein said double bonded oxygen of said amino acid is complexed to M, wherein said method comprises dissolving a salt containing metal in at least one inorganic acid and an aqueous source; and

adding at least one organic chelating compound containing R to form a metal complex having the formula R-M, wherein the preparation of the ~~composition~~ formulation occurs at a pH of about 2.0 or less.

Claim 14 (currently amended): The microbicidal ~~composition~~ formulation of claim 1, wherein said at least one disinfectant comprises one or more of chlorhexidine gluconate, chlorhexidine digluconate, chlorhexidine dihydrochloride, and chlorhexidine diacetate.

Claim 15 (currently amended): The microbicidal ~~composition~~ formulation of claim 1, wherein said at least one disinfectant comprises ~~one or more of~~ isopropyl alcohol ~~and or~~ hydrogen peroxide, or both.

Claim 16 (currently amended): A microbicidal ~~composition~~ formulation comprising at least one disinfectant and a product obtained by combining at least one metal ion (M) with at least an equimolar amount of at least one organic chelating moiety (R) based on the amount of M, wherein M is microbicidal to at least one microorganism, wherein said at least organic chelating moiety is an amino acid, wherein said amino acid includes a double bonded oxygen, wherein said double bonded oxygen of said amino acid is complexed to M at a pH of about 2 or less, and wherein said disinfectant and said product are not the same.

Claim 17 (canceled)

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Claim 18 (currently amended): The ~~microbicidal-composition~~ formulation of claim 16 wherein said at least one metal ion is a silver ion or colloidal silver.

Claim 19 (currently amended): A method to control the growth of a microorganism susceptible to treatment with a metal ion, said method comprising:

treating said microorganism with the ~~microbicidal-composition~~ formulation of claim 16.

Claim 20 (currently amended): A method of controlling biofouling in a system, comprising introducing to said system an effective amount of the ~~microbicidal-composition~~ formulation of claim 16.

Claim 21 (currently amended): A ~~microbicidal-composition~~ formulation comprising a disinfectant and a complex of the formula R-M, wherein R is at least one organic chelating moiety and M is at least one metal ion, and where R is present in an at least equimolar amount based on the amount of M, and M is microbicidal to at least one microorganism, wherein said at least one organic chelating moiety is formed from an amino acid, said organic chelating moiety has a carboxylic group which forms a dative covalent bond with M, wherein said carboxylic group includes a double bonded oxygen which is complexed to M at a pH of about 2 or less, and wherein said disinfectant and said complex are not the same.

Claim 22 (currently amended): The ~~microbicidal-composition~~ formulation of claim 21, wherein M is complexed through the doubled bonded oxygen of the carboxylic group.

Claim 23 (currently amended): A method for preserving cut flowers or plants from pathological microorganisms comprising:

treating said flowers and plants with the ~~microbicidal-composition~~ formulation comprising a complex of the formula R-M, wherein R is at least one organic chelating moiety and M is at least one metal ion, and where R is present in an at least equimolar amount based on

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the amount of M, and M is microbicidal to at least one microorganism, wherein said at least one organic chelating moiety is an amino acid, wherein said amino acid includes a double bonded oxygen, and wherein said double bonded oxygen of said amino acid is complexed to M at a pH of about 2 or less.

Claim 24 (currently amended): The method of claim 23, wherein the flowers and plants are treated by immersing a portion of the flower or plant in an aqueous solution of the ~~composition~~ formulation of claim 1.

Claim 25 (currently amended): The method of claim 23, wherein the flowers and plants are sprayed with an aqueous solution of the ~~composition~~ formulation of claim 1.

Claim 26 (currently amended): A method for protecting living flowers or plants comprising treating said flowers and plants with the microbicidal-~~composition~~ formulation comprising a complex of the formula R-M, wherein R is at least one organic chelating moiety and M is at least one metal ion, and where R is present in an at least equimolar amount based on the amount of M, and M is microbicidal to at least one microorganism, wherein said at least one organic chelating moiety is an amino acid, wherein said amino acid includes a double bonded oxygen, and wherein said double bonded oxygen of said amino acid is complexed to M at a pH of about 2 or less.

Claim 27 (currently amended): The method of claim 23, wherein the flowers or plants are treated by introducing into a container of water a tablet comprising the microbicidal ~~composition~~ formulation of claim 1.

Claim 28 (currently amended): A microbicidal-~~composition~~ formulation comprising an organo-metallic chelate of silver cations and glutamic acid, wherein the chelate exhibits the structural spectra depicted in Figures 1, 2, or 3.

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Claim 29 (currently amended): The microbicidal-~~composition~~ formulation of claim 1, further comprising artificial or natural colors or flavors.

Claim 30 (currently amended): The microbicidal-~~composition~~ formulation of claim 1, wherein said-~~composition~~ formulation is a gel or solid.